**Ministry of Higher Education and Scientific**

**Research Al-Mustaqbal University College**

**Department of Technical Computer Engineering**

**Lecture Number: 2**

**Computer Networks 3rd Stage**

**Lecturer: Hussein Ali Ameen**

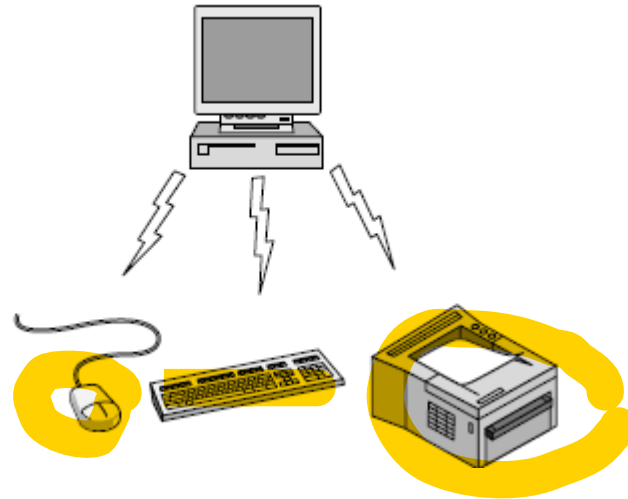**hussein-awadh@mutaqbal-college.edu.iq**
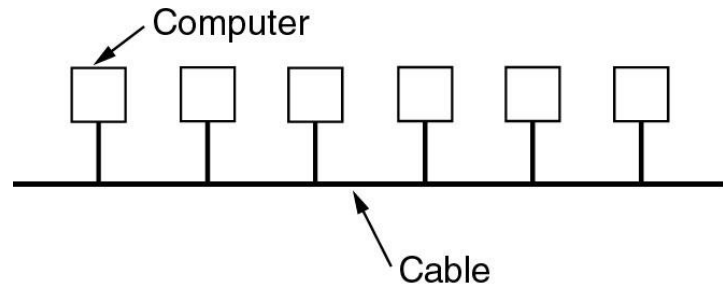
**2020-2021**

# Network Hardware

- ❖ PANs (Personal Area Networks)
- ❖ Local Area Network (LAN) & Wireless LANs
- ❖ Metropolitan Area Network (MAN)
- ❖ Wide Area Network (WAN)
- ❖ Internetworks

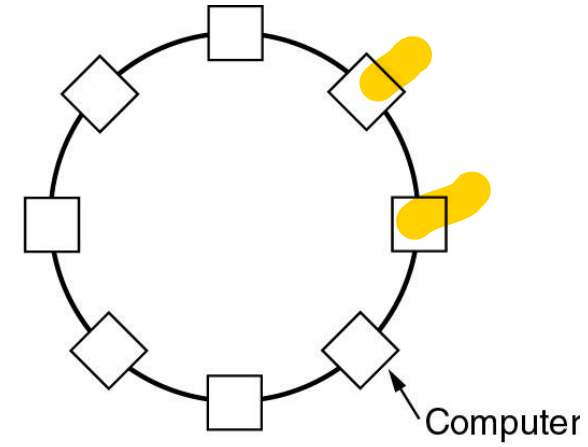| Interprocessor distance | Processors located in same | Example |
|---|---|---|
| 1 m | Square meter | Personal area network |
| 10 m | Room | Local area network |
| 100 m | Building | Local area network |
| 1 km | Campus | Local area network |
| 10 km | City | Metropolitan area network |
| 100 km | Country | Wide area network |
| 1000 km | Continent | Wide area network |
| 10,000 km | Planet | The Internet |

PANs (**Personal Area Networks**) let devices communicate over the range of a person. A common example is a wireless network that connects a computer with its peripherals.
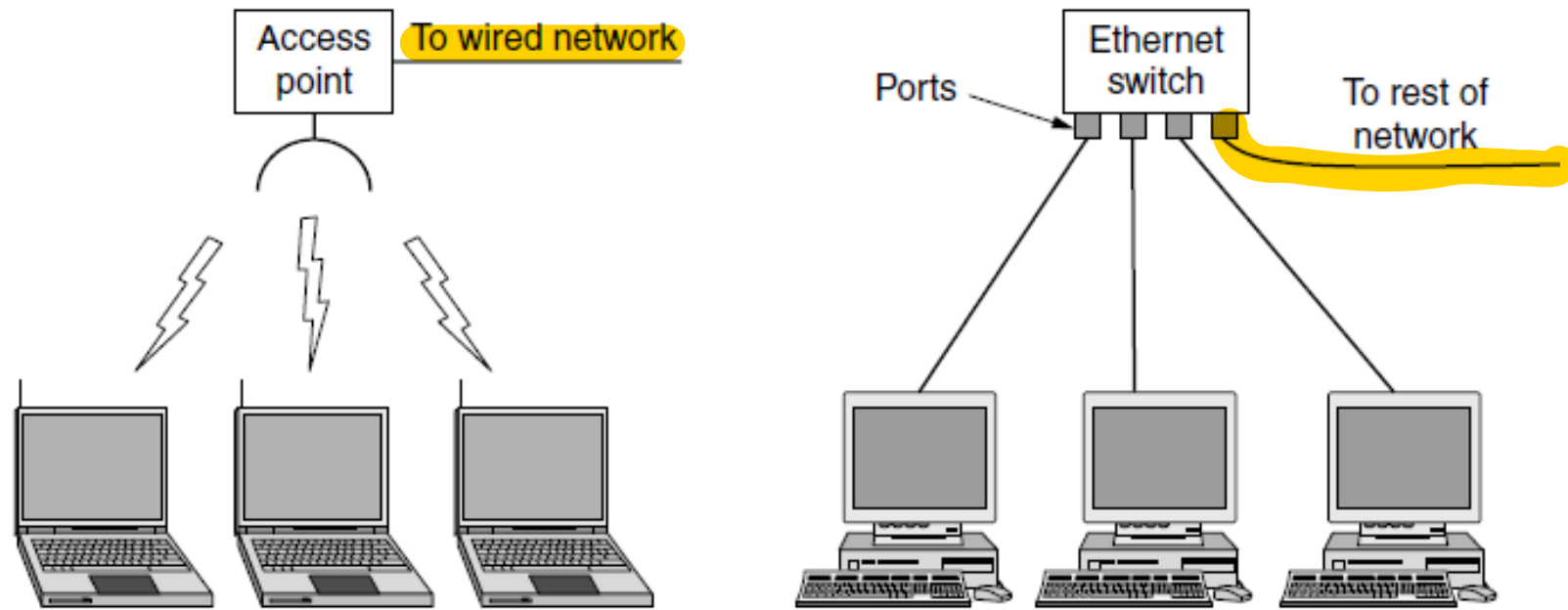
# Local Area Networks (LAN)



Computer

Cable

(a)

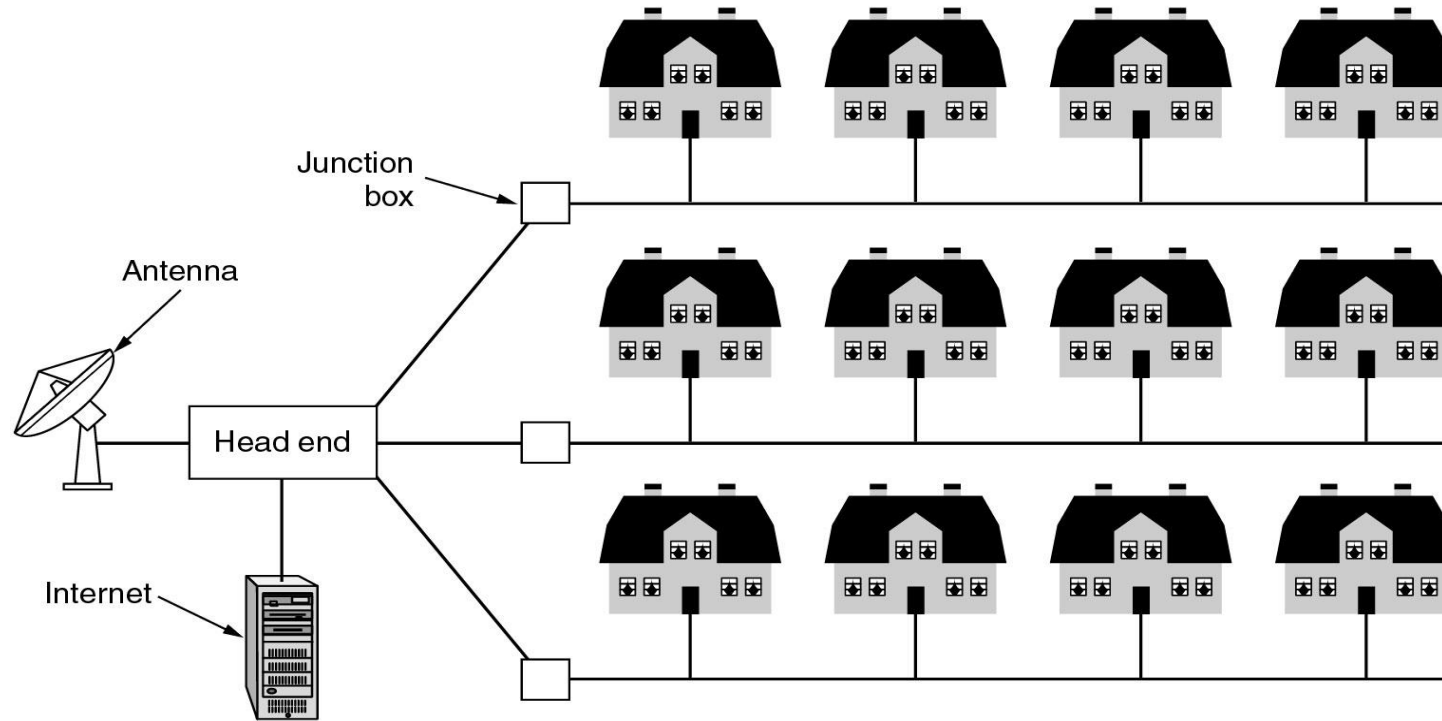Computer

(b)

**Two broadcast networks**
**(a) Bus**
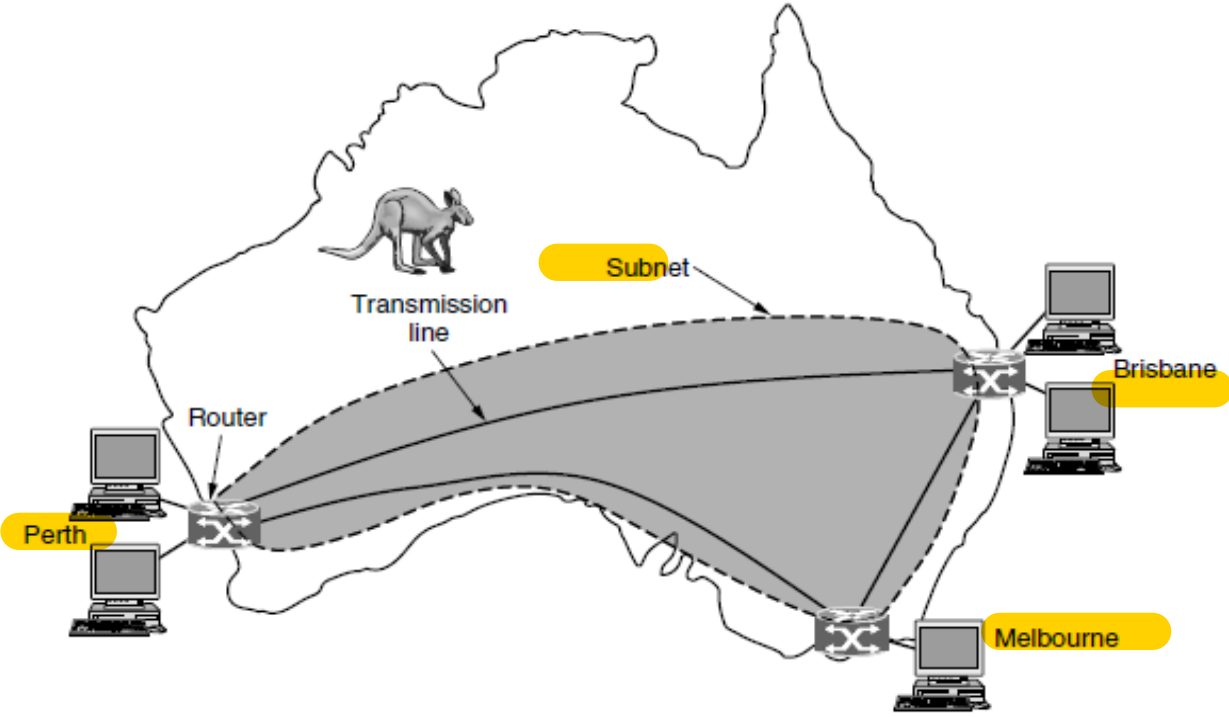**(b) Ring**

# Wireless LANs
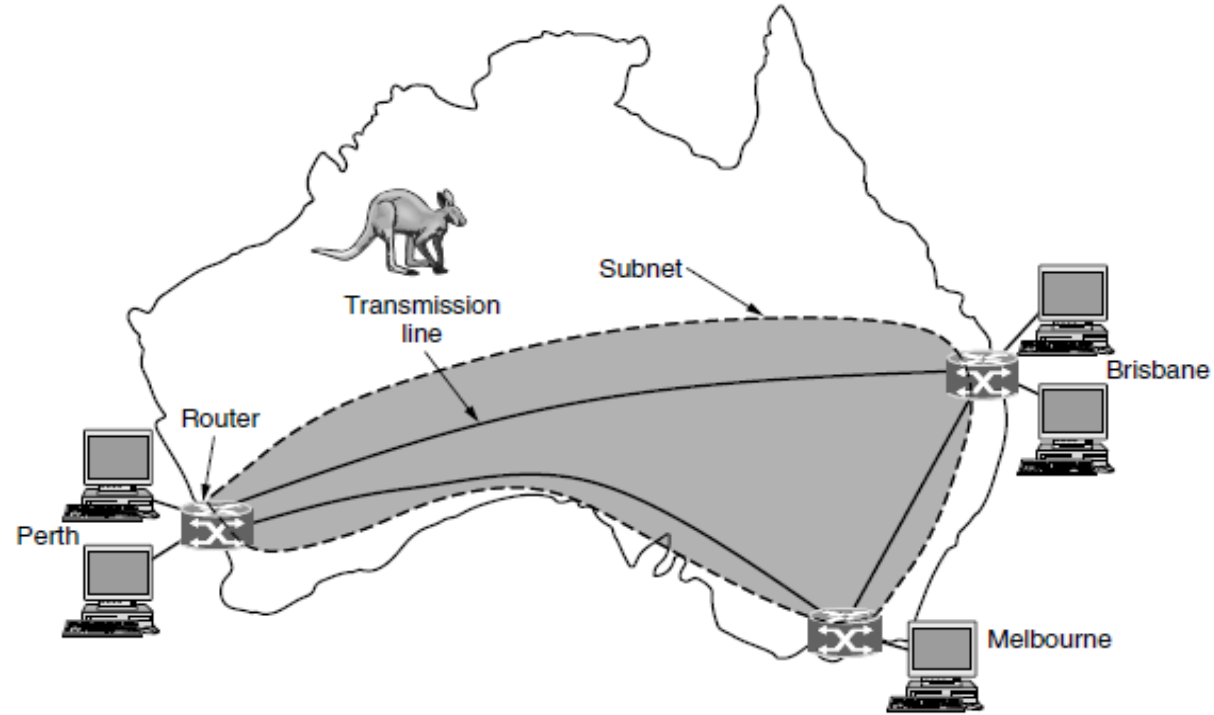
# Metropolitan Area Networks



A metropolitan area network based on cable TV.

# Wide Area Networks (WAN)



**A metropolitan area network based on cable TV.**

# Wide Area Networks (WAN)



**A metropolitan area network based on cable TV.**

| BASIS OF COMPARISON | CONNECTION-ORIENTED SERVICE | CONNECTION-LESS SERVICE |
|---|---|---|
| Prior Connection Requirement | Necessary | Not required |
| Reliability | Ensures reliable transfer of data. | Not guaranteed. |
| Congestion | Unlikely | Occur likely. |
| Transferring mode | It can be implemented using circuit switching and virtual circuit. | It is implemented using packet switching. |
| Lost data retransmission | Feasible | Practically, not possible. |
| Suitability | Suitable for long and steady communication. | Suitable for short Transmission. |
| Signaling | Used for connection establishment. | There is no concept of signaling. |
| Packet forwarding | Packets sequentially travel to their destination node and follows the same route. | Packets reach the destination randomly without following the same route. |
| Delay | There is a delay in transfer of information, but once the connection is established faster delivery can be achieved. | Because to the absence of connection establishment phase, the transmission is faster. |
| Resource Allocation | Need to be allocated. | No prior allocation of the resource is required. |